

## Geometry Chapter 2 Practice Test

### Multiple Choice

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. Petra received the following scores on her spelling quizzes:

6, 9, 10, 10, 9, 10.

What is her mean score?

- |     |      |
|-----|------|
| A 7 | C 9  |
| B 8 | D 10 |

- \_\_\_\_\_ 2. Solve  $m^2 = 16$ .

- |            |            |
|------------|------------|
| F 8        | H 4        |
| G -8 and 8 | J -4 and 4 |

- \_\_\_\_\_ 3. What is the value of  $2^3 \cdot 3^3$ ?

- |      |       |
|------|-------|
| A 18 | C 125 |
| B 54 | D 216 |

- \_\_\_\_\_ 4. What is the solution to the equation  $9(2 - x) = 0$ ?

- |       |      |
|-------|------|
| F -18 | H 2  |
| G 0   | J 18 |

- \_\_\_\_\_ 5. Which is an alternative name for  $\overrightarrow{LN}$ ?



- |                         |                         |
|-------------------------|-------------------------|
| A $\overrightarrow{L}$  | C $\overrightarrow{NL}$ |
| B $\overrightarrow{LK}$ | D $\overrightarrow{LM}$ |

**Matching**

*Match each vocabulary term with its definition.*

- A conjecture
- B inductive reasoning
- C deductive reasoning
- D conclusion
- E biconditional statement
- F hypothesis
- G counterexample
- H conditional statement

- \_\_\_\_\_ 1. an example that proves that a conjecture or statement is false
- \_\_\_\_\_ 2. a statement that is believed to be true
- \_\_\_\_\_ 3. the part of a conditional statement following the word *then*
- \_\_\_\_\_ 4. the part of a conditional statement following the word *if*
- \_\_\_\_\_ 5. the process of reasoning that a rule or statement is true because specific cases are true
- \_\_\_\_\_ 6. a statement that can be written in the form “if  $p$ , then  $q$ ,” where  $p$  is the hypothesis and  $q$  is the conclusion

**Short Answer**

- 1. Find the next item in the pattern.  
-1, 0, 3, 8, 15, . . .

2. Show that the conjecture is false by finding a counterexample.  $|x| = x$
3. Write “A number divisible by 10 is divisible by 5” as a conditional statement in the form “if  $p$ , then  $q$ .”
4. Write *True* or *False*. A positive whole number that ends in zero can be written as the product of two numbers that do not end in zero.
5. Write the contrapositive of the conditional statement “If two angles are supplements of the same angle, then the angles have the same measure.”
6. Given: If two angles are complementary, then the angles are acute.  $\angle X$  and  $\angle Y$  are both acute.  
Conjecture:  $\angle X$  and  $\angle Y$  are complementary. Determine whether the conjecture is valid by the Law of Detachment.
7. Given: If the area of a circle is numerically equal to the circumference of the circle, then twice the radius is equal to the square of the radius. If twice the radius is equal to the square of the radius, then the diameter is equal to the square of the radius. Draw a conclusion from the given information.
8. Determine whether the biconditional statement is true. If false, give a counterexample. It is Monday if and only if it is not the weekend.
9. Solve the equation. Write a justification for each step.  
$$3 = \frac{x}{6} + 1$$

10. Use the Transitive Property of Congruence to complete the statement “If  $\overline{AB} \cong \overline{CD}$  and  $\overline{CD} \cong \overline{EF}$ , then \_\_\_\_\_.”

11. Write a two-column proof.

**Given:**  $\angle 1$  and  $\angle 2$  are supplementary and  $\angle 1 \cong \angle 3$ .

**Prove:**  $\angle 2$  and  $\angle 3$  are supplementary.

12. Write a two-column proof.

**Given:**  $m\angle A = 30^\circ$  and  $m\angle B = 2m\angle A$ .

**Prove:**  $\angle A$  and  $\angle B$  are complementary.

13. **Given:**  $\angle ABC$  is a right angle,  $X$  is in the interior of  $\angle ABC$ , and  $m\angle XBC = 45^\circ$ .

**Prove:**  $\overrightarrow{BX}$  bisects  $\angle ABC$ .

**Proof:**

Statements	Reasons
1. $X$ is in the interior of $\angle ABC$ .	1. Given
2. $m\angle ABC = m\angle ABX + m\angle XBC$	2. $\angle$ Add. Post.
3. $\angle ABC$ is a right angle.	3. Given
4. $m\angle ABC = 90^\circ$	4. Def. of rt. $\angle$
5. $m\angle XBC = 45^\circ$	5. Given
6. $90^\circ = m\angle ABX + 45^\circ$	6. Subst., Steps 2, 4, 5
7. $45^\circ = m\angle ABX$	7. Subtr. Prop. of =
8. $\angle ABX \cong \angle XBC$	8. Def. of $\cong \angle$ s
9. $\overrightarrow{BX}$ bisects $\angle ABC$ .	9. Def. of $\angle$ bisector

Write a paragraph proof.

14. **Given:**  $\angle ABC$  is a right angle,  $X$  is in the interior of  $\angle ABC$ , and  $m\angle XBC = 45^\circ$ .

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1. $X$ is in the interior of $\angle ABC$ .	1. Given
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6. $90^\circ = m\angle ABX + 45^\circ$	6. Subst., Steps 2, 4, 5
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Write a flowchart proof.